Remarks

The status of the claims is as follows. Claims 1-14 were originally filed and were canceled in a Preliminary Amendment, in which Claims 15-42 were added. Claims 15-42 were subject to restriction. Claims 1-37 and 39-42 were previously canceled and Claims 43-50 were previously added. Claim 50 was withdrawn from consideration in the present Office Action. Claims 43, 44 and 46 have been canceled herein. Applicant reserves the right to file divisional applications to the separately patentable subject matter of the withdrawn and canceled claims. Claims 51-55 have been added. Thus, Claims 38, 45, 47-49 and 51-55 are currently pending and Claim 50 stands withdrawn.

The Amendment

Claim 38 was amended to correct an obvious typographical error.

Claims 51-55 were added. Claim 51 is based on Claim 46 rewritten to place it in independent form.

Claims 52-55 are based on Claims 44 and 47-49, respectively.

Objection to Specification

Applicant submits that the amendment to the specification above obviates this objection.

Rejection under 35 U.S.C. §102

Claims 38 and 49 were rejected under 35 U.S.C. 102(b) as being anticipated by Brennan (U.S. Patent No. 5,474,796) (Brennan). The reference discloses apparatus and methods for making arrays of functionalized binding sites on a support surface. Brennan further describes apparatus and methods for sequencing oligonucleotides and for identifying the amino acid sequence of peptides that bind to biologically active macromolecules by specifically binding biologically active macromolecules to arrays of peptides or peptide mimetics.

The Office Action asserts that, with respect to the limitation in claim 38 of each spot having a different concentration of immobilized oligonucleotide, Brennan teaches that typically the droplets of oligonucleotides will not vary in size by more than 5% (col. 6, lines 18-64). The Office Action argues that the variability in droplet size will result in variability in concentration of oligonucleotide in each droplet and each binding site will have a different concentration of oligonucleotide. In further support of this assertion, the

Office Action refers to Example 2 of Brennan in column 7 as teaching a variable concentration of oligonucleotide in each binding site (referring specifically to lines 61-67 of col. 7).

Applicant respectfully traverses this rejection. Brennan clearly specifies (Example 4, column 9, lines 55-57) a single oligonucleotide loading density for an array prepared as described in Examples 1 and 2. Consequently, rather than teaching an array with different concentrations of oligonucleotide, Brennan teaches just the opposite. The teaching of the reference that different droplet sizes have different amounts of oligonucleotides does not provide a teaching as suggested in the Office Action. The teaching merely provides information that one skilled in the art would find useful in controlling the density of oligonucleotides from one array to the next. The skilled artisan would expect that larger drops would contain more material. In Example 2, Brennan provides the numbers for the particular oligonucleotide solution employed in the example. Therefore, the teaching concerning size of drops does not change the fact that the patentee teaches arrays with one concentration of oligonucleotides.

Furthermore, the assay plate of Claim 38 has dried spots comprising oligonucleotides. Brennan does not teach or suggest this feature of the claimed invention. In addition, the assay plate of Claim 38 is in a waterproof storage container. The Brennan reference is silent on such a feature.

Claims 38, 45, 47, 48, and 49 were rejected under 35 U.S.C. 102(b) as being anticipated by Stavrianopoulos, *et al.* (U.S. Patent No. 4,994,373) (Stavrianopoulos). The reference discloses a method for detecting polynucleotide sequences in a sample of biological or nonbiological material involving fixing of the sequences on a solid support and forming an entity between the fixed sequences and chemically-labeled polynucleotide or oligonucleotide probes having a sequence complementary to the fixed sequence for determining the identification and/or presence of the target polynucleotide sequences. The chemical label covalently or noncovalently attached to the probe comprises a signaling moiety capable of generating a soluble signal detectable by spectrophotometric assay techniques.

Without acquiescing in the position of the Office Action regarding the assertion that the reference discloses the assay plate of Claim 38, the assay plate of amended Claim 38 has dried spots comprising immobilized oligonucleotides. Stavrianopoulos does not teach or suggest this feature of the claimed invention. In addition, the assay

plate of Claims 38 is in a waterproof storage container. The reference is silent on such a feature.

Rejection under 35 U.S.C. §103

Claim 43 was rejected under 35 U.S.C. 103(a) as being unpatentable over Brennan in view of Brown, *et al.* (U.S. Patent No. 5,807,522) (Brown). The Brown reference discloses a method and apparatus for forming microarrays of biological samples on a support. The method involves dispensing a known volume of a reagent at each selected array position by tapping a capillary dispenser on the support under conditions effective to draw a defined volume of liquid onto the support. The apparatus is designed to produce a microarray of such regions in an automated fashion.

The Office Action recognizes that Brennan differs from the instant invention in failing to teach drying the oligonucleotides immobilized in the binding sites. However, argues the Office Action, Brown discloses a method of making a microarray where the analyte specific reagent in each binding site of the microarray is dried after its application. It would have been obvious to one of ordinary skill in the art, asserts the Office Action, to dry the binding sites of Brennan as taught by Brown because the excess liquid in each droplet applied to the binding sites containing the oligonucleotides needs to be removed prior to storage and/or use of the microarray.

First, Brennan is deficient as discussed above in not disclosing different oligonucleotide concentrations at different spots. Second, Brown teaches that some humidity may be desirable (col. 9, lines 46-51). Third, even if for the sake of argument one skilled in the art would be motivated to make the substitution suggested by the Office Action, one still would not be in possession of the assay plate of Claim 38, which is present in a waterproof storage container. The combination of reference teachings does not suggest this feature.

Claim 44 was rejected under 35 U.S.C. 103(a) as being unpatentable over Brennan in view of Eriksson. The reference teaches a packaged unit comprising a sealed envelope of partible thermoplastic film material within which is enclosed an elongated absorbent test strip.

The Office Action recognizes that Brennan differs from the instant invention in failing to teach storing the microarray in a waterproof storage container. However, asserts the Office Action, Eriksson discloses a waterproof envelope for holding a test strip. The Office Action asserts that it would have been obvious to one of ordinary skill

in the art to enclose the microarray of Brennan in the waterproof envelope of Eriksson because the waterproof envelope of Eriksson provides the advantage of protecting the reagents on the microarray from contaminants.

Applicant submits that the skilled artisan would not be motivated to make the combination of teachings of the references as suggested in the Office Action. One of the references above, namely, Brown, teaches that some humidity may be desirable (col. 9, lines 46-51). Consequently, one skilled in the art is presented with a disclosure that drying may not be necessary and, thus, would not be motivated to dry the device of Brennan and/or keep the device of Brennan in a waterproof storage container. Furthermore, Brennan is deficient as discussed above in not disclosing different oligonucleotide concentrations at different spots.

Allowable Subject Matter

The Office Action indicated that Claim 46 was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant has complied with this suggestion and provided new Claims 51-55.

Conclusion

Claims 38, 45 and 47-49 satisfy the requirements of 35 U.S.C. §§102 and 103. Claim 46 has been rewritten in independent form as Claim 51 and is, therefore, allowable as are those claims depending therefrom. Allowance of the above-identified patent application, it is submitted, is in order.

Respectfully submitted,

Theodore J. Leitereg
Attorney for Applicant
Reg. No. 28,319

Agilent Technologies, Inc.
Legal Department, M/S DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599